



CAMOSUN COLLEGE
School of Arts & Science
Department of Biology

BIOL-126-001
Physiological Basis of Life
Winter 2020

COURSE OUTLINE

The course description is online @ <http://camosun.ca/learn/calendar/current/web/biol.html>

□ Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.

1. Instructor Information

(a) Instructor	W. Donald MacRae
(b) Office hours	Mon (9:30-11:00 and 1:30-4:00) and Wed (3:00-4:00)
(c) Location	F346A
(d) Phone	250-370-3437
(e) E-mail	dmacrae@camosun.bc.ca

2. Intended Learning Outcomes

Upon completion of this course the student will be able to:

1. Classify and describe the unique structure and function of the four groups of macromolecules and discuss how these relate to their properties within living cells.
2. Differentiate among the various transport mechanisms available to mobilize molecules across cell membranes.
3. Name and outline the pathways utilized by cellular respiration and photosynthesis and explain the importance of these processes to living organisms.
4. Describe the basic steps of DNA replication and indicate its role in cell division and inheritance.
5. Demonstrate knowledge of the basic steps of protein synthesis, identifying the roles of DNA, mRNA, tRNA, amino acids and proteins in the processes of transcription and translation.
6. Identify and explain the principles and consequences of the cell cycle, including both mitosis and meiosis.
7. Examine the basic principles of Mendelian genetics and describe how these relate to other topics encompassed in this course.
8. Describe and explain the role of growth regulators in the control of plant growth, development and physiology.
9. Describe and explain the diversity of control mechanisms in animal systems, including the role of the endocrine and nervous systems.
10. Conduct experiment tests and use analytical techniques in the laboratory to demonstrate a few biological properties of macromolecules, cellular respiration, photosynthesis, DNA technology and plant and animal control systems.

3. Required Materials

(a) Don's Biol 126 Book is available for download at:

https://drive.google.com/drive/folders/1uFdUtfVoofZJcPRosUYvCXvxc23v_kHg?usp=sharing

(b) The Biology 126 Winter 2019 Lab manual is required and will be posted on D2L. Students are expected to print their own copies and bring to the lab periods.

4. Course Content and Schedule

Lectures: Mon (F268) 11:00 AM –12:20 PM
 Wed (Y310) 1:30 PM –2:50 PM

Lab Section A: Wed (F224) 9:30 AM – 12:20 PM

Lab Section B: Fri (F224) 9:30 AM – 12:20 PM

Week	Date	Lecture Topics	Labs
1	Jan 6-10	1 Introduction 2 Definition of life	Introduction
2	Jan 13-17	3 The historical path of life	Lab 1 Concentrations, dilutions and spectrophotometry
3	Jan 20-24	4 Chemical foundations	Lab 2 Enzyme Activity
4	Jan 27-31	5 Anaerobic metabolism	Lab 3 Cellular Respiration Experiment
5	Feb 3-7	(Exam 1: Oct 2) 6 Photosynthesis	Lab 4 Photosynthesis
6	Feb 10-14	7 Aerobic metabolism	Lab exam 1
Feb 17-21		Reading Break	
7	Feb 24-28	8 Transport mechanisms	Lab 5 Plant Hormones-1 Lab 6 Meiosis
8	Mar 2-6	9 Nucleic acids and proteins	Lab 7 Diffusion and Osmosis
9	Mar 9-13	10 Genetics	Lab 5 Plant Hormones-2 Lab 8 Drosophila eye pigments-1
10	Mar 16-20	(Exam 2: Nov 6)	Lab 8 Drosophila eye pigments-2 Lab 9 PCR detection of alleles-1
11	Mar 23-27	11 Gene expression	Lab 9 PCR detection of alleles-2
12	Mar 30-Apr 3	12 Electrical signalling	Lab exam 2
13	Apr 6-9	13 Movement	
April 14-22		Final exam (scheduled by registrar)	

5. Basis of Student Assessment (Weighting)

Pre Lab Assignments	5%
Labs	10%
Lab Exam I	10%
Lab Exam II	10%
Lecture Assignments	15%
Midterm I	15%
Midterm II	15%
Final Lecture Exam	20%

6. Grading System

- Standard Grading System (GPA)
- Competency Based Grading System

8. College Supports, Services and Policies

Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ <http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/> Assistance with study skills is available in room 143 of the Lansdowne Library – further details at <http://camosun.ca/services/writing-centre/learning-skills.html>

College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

A. GRADING SYSTEMS <http://camosun.ca/about/policies/index.html>

The following two grading systems are used at Camosun College:

1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at <http://camosun.ca/about/policies/index.html> for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.